THE

ARCHITECTURAL MAGAZINE.

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ORIGINAL COMMUNICATIONS.

ART. I. *Architecture considered as an Art of Imagination.* By the CONDUCTOR.

WE have already stated (p. 97.) that architecture is an art of imagination as well as one of reason and taste. When we speak of imagination, we allude to that power of the mind which consists in recalling ideas previously treasured up there by the memory, and presenting them in new combinations. Now, it is evident that a person may feel pleasure in beholding an object, without having many ideas treasured up in his memory respecting it; and this is what we have called having a feeling, or a natural taste, for an art. When that feeling is cultivated, the memory and the recollection are, no doubt, called into exercise by it; but not necessarily to that extent which would justify us in stating that the possessor of such a feeling had a taste for architecture as an art of imagination.

An art of imagination is an art which depends directly on the imagination of the artist for its creations. This, we think, is precisely what is meant when architecture is said to be an imaginative art; and hence it follows that the expression is more used with reference to the exercise of their profession by architects, than to the taste or criticism of lovers of architecture. All arts or occupations where invention, or the power of forming new combinations, in the artist or artisan is eminently required, may be called arts of imagination: for example, a machinist, who invents new machines, may be said to practise an art of imagination in doing so. The term, however, is not generally applied to the combinations of the machinist, as his inventions are addressed exclusively to the reason, and can be judged of by mathematical calculation; whereas, by the common consent of mankind, the expression "arts of imagination" is confined to those arts, the inventions of which address themselves to the feelings, and, through them, to the imagination; in short, to those arts which produce emotion, or vivid mental feeling, as distinguished from merely physical feeling. A machine on a new construction, a new composition in landscape, or an entirely new architectural design, are alike produced by the artist from the stores of his memory, passed through the alembic of his

imagination: but the machine, before its beauties can be understood, requires the aid of geometrical comparisons and arithmetical calculations; whereas the landscape or the architectural design affects the feelings or the imagination at once through the eye. While we make this statement, it is, at the same time, proper to add that it only holds good with mankind in general: for it is certain that a person enthusiastically devoted to machinery, whether with or without a taste for landscape or architecture, would feel emotion; that is, a vivid train of pleasurable ideas, raised up in, or passing through, his mind at the sight of an original and ingenious machine, and, perhaps, little or none at the same degree of originality and ingenuity in a landscape or an architectural design. Every one has heard of the anecdote of the celebrated mathematician who read the *Paradise Lost* without being able to discover in it any thing that was sublime; but who said that he could never read the queries at the end of Newton's *Optics* without feeling his hair stand on end, and his blood run cold. It would seem, therefore, that every art and pursuit may become an art of imagination to him who follows it with a sufficient degree of ardour and enthusiasm: but, still, this will not justify us in departing from the general use of language, which limits the term "arts of imagination" to those arts, the main object of which is to create emotion in mankind generally.

Architecture, as an imaginative art, may be considered in two points of view; viz., as affecting the mind of the uninitiated spectator, and as exercising the genius of the architect.

The spectator who has little historical, geographical, or technical knowledge of architecture may feel a building to be grand, beautiful, picturesque, rich, ornamented, elegant, or the contrary; and yet his imagination may be but little affected by it. The reason of this is, that the imagination sees only in other things what it has first made its own by observation and memory. In the same manner, a person may be affected by music, that is, by harmonious combinations of sounds, without having the idea of a single air or tune treasured up in his mind. The enjoyment, in this case, is unquestionably far inferior to that which would be obtained by a person who had treasured up many tunes in his memory, when one of them was repeated to him at a considerable distance of time. In like manner, a person who had scarcely ever been out of London, and who had seen few pictures of landscapes, would feel pleasure in looking at a painted or engraved landscape; but this pleasure would be little, compared with that enjoyed by a spectator who had seen many paintings, and had viewed the real landscapes of the most beautiful or romantic parts of this country, or perhaps of foreign countries. The pleasure, even in the last case, would be still greatly inferior to that experienced by the landscape-painter,

who would see in a picture not only an accurate imitation of nature, but a beautiful display of the science of his art. The cause of the pleasure, in the first case, is, simply a feeling for rural nature; in the second, it is a cultivated feeling; and, in the third, it is the joint exercise of feeling for this beauty, suggested, as before, by the eye, and a mental feeling for a display of the skill of the artist, suggested by the artist's imagination. Thus the exercise of the imagination adds greatly to the pleasures of taste; and, consequently, whoever wishes to enhance to the utmost his enjoyment of architectural design should be assiduous in storing his mind with ideas on the subject, by reading, by the observation of buildings of every kind, whether as designs or drawings in the portfolios of artists; or of edifices, whether in town or country, newly erected, or in ruins; and whatever may be their uses, their beauties, or their deformities; and, in short, by every means in his power.

The architect to whom architecture is not an art of imagination, as well as an art of reason, can never, by any possibility, rise above the rank of an imitative builder. He may rear edifices of great strength, solidity, and durability, very fitly arranged for the purposes for which they are built, and very correct in their architectural details; but he will never be able to produce a structure in which novelty and originality are combined with the ordinary requisites of excellence; or, when placed in a situation where rules no longer apply, to rise superior to obstacles which would be reckoned insurmountable by ordinary minds; and thus, out of difficulties, to "start" beauties. This can alone be done by the architect of imagination; and it is only such an architect that is entitled to be considered an artist possessing the powers of invention or genius.

It thus appears, that, the more an amateur or architectural critic stores his mind with ideas on architecture, the greater will be his enjoyment when examining architectural designs. It is also evident, from the foregoing considerations, that the preparatory studies of an architect must be chiefly directed to the same object; viz., that of accumulating ideas on his art; since his efforts as a designer will consist chiefly in forming new combinations from these ideas. These combinations must, in every case, be directed to the attainment of a certain end; or, in other words, to the production of an edifice which shall be adapted for certain uses, and shall, at the same time, produce a certain kind of expression of beauty or of character. Hence it follows, that an architect must not only possess genius, or the power of inventing, but also taste to compose his designs according to the principles of beauty, and judgment, or the power of reacting on the creations of his fancy, so as to enable him to bring every design, after it has been suggested by taste, under the control of reason.

ART. II. *On the alleged Degeneracy of Modern Architecture.* By E. TROTMAN, Esq.

AMONG the hastily formed and popularly supported notions upon matters of taste, none seems to be more current than the supposition that all that is excellent in art has been transmitted to us from past ages, and that all the productions of modern skill are mere imitations of the ancient, far inferior to them in grandeur and beauty. We sometimes smile at the fictitious interest with which a pretension to remoteness of origin invests, in the sight of the zealous antiquary, the most ordinary objects; and we can indeed sympathise with the gratification with which even the shadow of a probability may be seized by some Oldbuck, whether to exemplify the principles of castrametation, or any other equally obscure. Let but the figured pottery brought to light in the course of an extensive excavation afford the least evidence of a long interment, and all its outlines are at once discovered to be replete with character and with beauty, however commonplace they might have been at the time of their formation; the grotesque and the ill-proportioned become curious, at least; and, so far from having decreased in value amid all the emulation of modern skill, the old treasure is proved to have been only lying out at compound interest. We are far from despising this feeling of deferential regard for the remains of antiquity; though it be sometimes liable to excess, and open to caricature. The architect, indeed, who has a soul for his profession, will be of all men the most susceptible of impression from matters of antiquarian interest; inasmuch as the most important remains of past ages are those of an architectural character, and in the history of such remains is involved that of nations, arts, and usages, whose every memorial becomes thus tributary to a comprehensive knowledge of his primary subject. Out of this very susceptibility, however, existing, to a certain extent, in almost all minds, as well as his own, arises the necessity for caution, lest the dictates of the judgment upon matters of taste be made subordinate to the suggestions of the feelings. In the absence of this, nothing is more common than for the observers of some mouldering relic to accompany their tribute of praise with a sigh for the inability of modern artists to produce any thing comparable with the works of their predecessors, though with the same justice as that with which the ancient poets sorrowed at the flight of the golden age, or lamented the pygmy powers of their contemporaries, as contrasted with the might of the preceding race. We have no intention, however, to follow out the developement of this principle of dissatisfaction with things present, which has always characterised the human mind; our object being rather to offer a few remarks on the complaint,

as popular as it is idle, which charges modern architecture with having degenerated from the excellence of the ancient. Popular as this complaint is, indeed, it is so only among those who have bestowed but a superficial degree of attention upon the subject; yet it cannot be unimportant that the credit of the art should be vindicated before the public mind, affecting, as it does at all times, the honour of an age and nation, as well as the character of its individual professors.

At the outset, therefore, we should wish to be informed, by the objectors to the claims of modern science, what period is to be considered as constituting the boundary between ancient and modern times; and whether, upon reference to the duration of the different architectural systems of successive ages and climes, we shall not find that the inventive powers of the world, in later times, have produced revolutions as entire, as distinctive, as beautiful, and as rapid, as those which marked the earlier progress of constructive skill. Indeed, upon a chronological notice of the periods of Egyptian and Hindoo, of Grecian, Roman, Saracenic, Norman, and Pointed Architecture, we are much mistaken if the art does not exhibit, as it were, an increased impetus in its progress downwards, not without impediments and deflections in its course, but still accumulating its most resistless force for its last stage. However, without taking advantage of this division of time, as the ancient and modern, we will suppose the objection before us to contrast, under the title of modern works, those of somewhere about the last two centuries only, with the remains of preceding ages. And even here, we think, the complainants will have a difficulty in substantiating their charge, while we hold preserved among us the productions of Jones and Wren, of Kent and Burlington; to say nothing, at present, of the creations of our own contemporaries. It is true that these works may be, to some extent, impaired by an implicit deference to the practice of the modern Italian school, uncorrected by a due regard to the purer models of ancient Rome, and the chaste remains of Greece; yet this defect may well be considered as counterbalanced by the great variety of composition, and the exuberance of fancy, displayed in the productions of this period; qualities the more worthy of admiration when we consider how many of those productions were the creation of one mind. If we compare the degree of invention exhibited in the temples of Greece with that which characterises the ecclesiastical architecture of the last two centuries, to go no farther than our own country, we are far from having any occasion to fear the result. In truth, one Greek temple would represent a hundred; and it was for the sculptor, rather than the architect, to create the means of distinction between so many of the same general composition. And as to that appendage which does not admit of any compa-

rison, since it is absent from ancient works altogether, the steeple, we are prepared, in spite of all hypercritical cavils, to think that modern architecture has lost nothing by its introduction. Unquestionably it is to the pointed style, from which this feature was originally derived, that we must look for its most successful treatment; still, however, we think that the prospect which the Londoner may obtain from Blackfriars or Southwark Bridge will be quite sufficient to vindicate the credit of our church architects of the past age, as having, in many instances, met the difficulties of this species of composition with a masterly skill. And though it be true that we have no classical precedents for steeple architecture, the most critical must confess that we have numerous examples of the application of orders upon orders, that application upon which steeple composition essentially depends; and of those examples some even claim the boasted sanction of Greek taste, as may be seen in the remains at Pæstum. We think, also, that it cannot be complained that we have failed to turn this privilege of placing orders upon orders to at least as good account as did the architects of classic times. Indeed, we should rather say, we had turned it to a better; since, if there be any circumstances which justify the use of columns upon columns, they are those which require the elevation of a lofty mass upon a very contracted base, and not, as in the Greek and Roman instances, those which allow an ample extent in connection with a limited height. After all, we should be sorry to forego the elegance of many of our specimens of steeple architecture, to satisfy the demands of a servile deference to classic precedents, which would be at once to divest our cities of all that is commanding in the distant prospect, and leave us only the sullen aspect of the dingy warehouse top and blackened gas chimney. However, our business is not with these features alone, as it is not to them that popular complaint particularly applies. To meet that complaint, then, on whatever other ground it assumes, we may anticipate the enquiry, "How is it that we see so little of grandeur and of elaborate ornament in the sacred and other edifices of the present time, compared with those of some centuries back?" This question, indeed, generally stands associated with two opinions equally untenable; the one consisting in the unqualified assumption of the position on which the enquiry rests, and the other in the conclusion that architectural science must have degenerated if that position be true. We may answer the question by noticing these two opinions separately: and as to the first, we reply, that it is not *universally* the case that the ecclesiastical architecture, for instance, of recent date, is deficient in dignity and beauty as compared with that of olden time. It is not, in truth, the work of every year, or of every century, to be raising a cathedral, provided, as we have

been, by the munificence of our forefathers, with structures of that class, which seem calculated to endure as long as the earth on which they stand. We think, however, that, in the event of such a demand, we have, in the labours of Sir Christopher Wren, a sufficient proof that modern skill is quite able to meet the exigency of the case, and, as the greater includes the less, to provide for the successful treatment of all minor examples of ecclesiastical architecture. It is true, indeed, that the proportionate number of richly embellished churches is not now so great as it formerly was; but the reason for this is to be found in considerations which have no reference to any existing state of architectural science. Of these considerations, the most weighty arises from the change which has taken place in public opinion, upon matters ecclesiastical and religious, since the era of the Reformation. The influence which the priesthood of the Roman church formerly exercised over the persons, property, and services of the laity of all classes, and which induced alike the wealthy and the skilful to vie with each other in the splendour of those productions which were to purchase the peace of the departed spirit, and insure the favour of the saints, now no longer incites the liberality of a superstitious people. On the other hand, while the purer principles of the English church lead her to disclaim the system of artifice and spiritual domination, on which papal splendour has ever thriven, the reaction which, in these times of tolerance and speculation, has too generally taken place, from a state of blind subserviency to the opposite extreme of moral indifference, is necessarily far from favourable to the display of magnificence in ecclesiastical structures. While, therefore, this feeling causes the extension of so grudging a hand to the support of the outward dignity of the church, and while the increase of population demands the economical use of funds appropriated to the erection of sacred edifices, in order to increase their number and consequent efficiency, it is obviously idle to assert that architecture of this class has degenerated from its ancient splendour, when, in so many instances, its only object is that of providing the most ample and sufficient accommodation at the most economical rate; an object, certainly, never more effectually attained than in the churches of later years.

Not to insist on the opportunity afforded for architectural display, by the cheap rate of labour in former days,—an advantage which seems to us somewhat overrated, when we consider the difficulty of accumulating wealth for the purposes of building, as necessarily increased in proportion to the lowness of remuneration for work in general,—there are other circumstances which tend to explain the frequency of the magnificent structures of our forefathers. Of these, the chief are to be found in the spirit of the times, which, being incessantly occupied in the conten-

tions consequent on the existence of the feudal system at home, and the state of our political relations abroad, rendered military pursuits the all-absorbing object of attention to the nobles, and made, at the same time, castellated structures the most frequent and the most important means and monuments of those pursuits. Besides this, the *indirect* influence of such a state of things upon architecture was doubtless far from inconsiderable, since the withdrawment of the attention of the great from objects of literature, of domestic refinement, and of social cultivation, left them to concentrate the power of their wealth upon works which tended so much to gratify their love of display as did those of architecture and its subordinate arts; works, too, for the undertaking of which, the construction of their own castles would create a taste, and the splendour and claims of the ecclesiastical establishment would at once offer ample opportunity and powerful inducement.

We conclude, therefore, that the state of society under the extremes of nobility and vassalage, dazzled as it so often was by the pursuits and splendours of military life, and subservient as it was to the ambition and power of the Roman church, from the castle-building age of Stephen down to the era of the perfection of Pointed Architecture in this country, will afford a perfectly satisfactory answer to the enquiry, how it is that our later works of eminence are few compared with those of the age of the Edwards and the Henrys. To allow that this is the case, however, and that edifices of such surpassing beauty are now less frequently raised among us than formerly, is a very different thing from our conceding that, in those instances in which architecture does now put forth its powers, it displays less ability than it once did. To form a correct opinion upon this latter aspect of the general question, we ought rather to observe what the advance of modern architecture has accomplished, under circumstances less favourable to its progress than heretofore. It cannot for a moment be the subject of doubt, that our common order of domestic and every-day buildings exhibits much more of convenience, in union with what may be called an equalised neatness of character and finish, than formerly, at a much less relative expense; nor can it be supposed that we are less acquainted with the capabilities of materials and the principles of scientific construction than were our predecessors. All this is, indeed, the natural result of that more general diffusion of property and of knowledge, which, while it forbids the display that would once have been made by monopoly, demands a style characteristic of that middle rank of life which can scarcely be said to have existed in those ages which were most prolific of splendour. It is, moreover, to be observed, that the changes which have taken place in our *ecclesiastical* architecture have been such as to pro-

vide the most commodious structures for a greatly increasing population, with regard at the same time to very different purposes of application than formerly, in the abolition of all that apparatus of processional and ritual parade by which an appeal was made to the senses of the multitude, and which required for its exhibition great space and complex arrangement. What later architects have achieved, under the restrictions of simplicity of form and economy of cost, is quite sufficient to justify the expectation, that, under more extended circumstances, their productions might rival those of antiquity. At least we entertain this hope with regard to many, and more particularly to those whose successful works in the pointed style have latterly adorned the metropolis, and various parts of the kingdom; for we must confess, indeed, that we have very little reason to anticipate much benefit from the constant repetition of the forms of Grecian temples for the purposes of Christian churches. It would be a somewhat invidious task, to enter at any length upon a comparison of the works of contemporary and past architects in detailed and specific instances, or to expatiate on the faults of some recent buildings of high pretension. We notice the most popular departments of architecture in this very cursory manner, merely for the sake of showing that the changes which they have experienced in modern times are attributable to correspondent alterations in the state of society, and of our institutions, religious and political; and that the study and profession of architecture ought not, therefore, to suffer in public estimation, for the inability to create the opportunity, or command the pecuniary resources, necessary to magnificent display.

10. *Furnival's Inn, May* 17. 1834. E. T.

ART. III. *The Elements of Grecian and Roman Architecture, practically explained to the General Reader.* By Mr. J. ROBERTSON.

(*Continued from* p. 113.)

THE object of the present article is to enable the reader to generalise on the different proportions of what are called the orders of classical architecture.

The three orders which were invented by the Greeks are considered by architects as expressive of strength, grace, and richness. The Romans subsequently invented two others, with a view to extend the bounds of strength on the one side, and of richness on the other. The proportions of these five orders are founded on the lower diameter of the columns of each; all their different members and details being drawn to a scale formed from such diameter. This scale is frequently formed by dividing the diameter into two equal parts, which are called modules, and one

of these modules into twelve divisions, which are termed parts. The word module is used to signify an element in a system of measurement; which element is taken from a portion of the body to be measured. Thus, among painters, the head is a module for the measurement of the human body. Different architects have adopted different modes of forming this scale. Perrault divided the semidiameter of the Corinthian order into thirty small parts, generally called minutes. Vignola divided the module into twelve parts in the Tuscan or Doric, and eighteen in the other orders. But the more general way is to divide the lower diameter into six equal parts; and each of these parts into ten minutes: then every member of an ordonnance, or order, may be described as being, either in height or projection, so many minutes of this scale. Every order is divided into three parts; namely, the pedestal, the column, and the entablature: and these are subdivided, so that the pedestal is composed of a base, die, and cornice; the column of a base, shaft, and capital; and the entablature of an architrave, frieze, and cornice. These parts are of unequal height; and an assemblage and arrangement of the mouldings and principal details which compose them are called the profile of the order. Those profiles produce the most striking effect, in which the parts are few, and so applied as that some member may predominate in each division. This predominance of one member gives what is called expression. The following are general rules for determining the relative proportions of those parts which compose an order.

When a height is given which is common to all the five orders; that is, when they are all reduced to the same height, in order to exhibit their comparative proportions and the different diameters of their respective columns; this height is divided into nineteen equal parts. (*fig.* 66.) A conventional rule, agreed on by architects, is, that the height of the pedestal must always be one third of the column, and the height of the entablature one fourth; consequently, the pedestal requires four of these parts, the column twelve, and the entablature three. The twelve parts allotted to the column are then, for the Tuscan order, divided into seven; for the Roman Doric, into eight; for the Ionic, into nine; and for the Corinthian and Composite, into ten; and one of these parts forms the lower diameter of each respective column. The diameter is then a guide for the proportions of all the other members of the order.

When the given diameter of the column of each order is the same, their relative heights are obtained in the following manner (*fig.* 67.): — Upon a given straight line raise five perpendiculars equidistant from each other, which perpendiculars will form the axis of the columns of each order. On the first of

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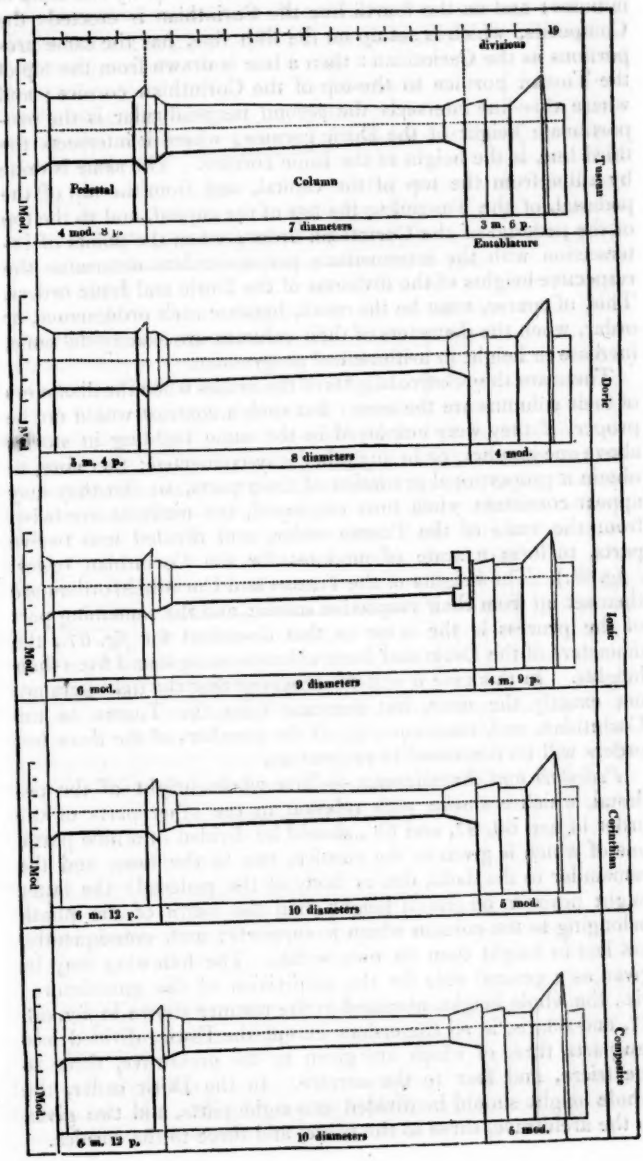
19
divisions
Mod.
Pedestal
Column
4 mod. 8 p.
7 diameters
3 m. 6 p.
Entablature
Tuscan
Mod.
3 m. 4 p.
8 diameters
4 mod.
Doric
Mod.
6 mod.
9 diameters
4 m. 9 p.
Ionic
Mod
6 m. 12 p.
10 diameters
5 mod.
Corinthian
Mod.
6 m. 12 p.
10 diameters
5 mod.
Composite

these vertical lines the Tuscan order is set up by the scale of minutes; and on the fourth line the Corinthian is erected; the Composite, which is set up on the fifth line, has the same proportions as the Corinthian: then a line is drawn from the top of the Tuscan cornice to the top of the Corinthian cornice; and where this line intersects the second perpendicular is the proportionate height of the Doric cornice; where it intersects the third line, is the height of the Ionic cornice. The same is done by a line from the top of the capital, and from the top of the pedestal, of the Tuscan, to the top of the capital, and to the top of the pedestal of the Corinthian order; when the points of intersection with the intermediate perpendiculars determine the respective heights of the divisions of the Doric and Ionic orders. This, of course, must be the result, because each ordonnance, or order, when the diameters of their columns are exactly the same, increase in height in arithmetical progression.

These are the relative heights of the orders when the diameters of their columns are the same: but such a contrast would not be proper, if they were employed in the same building in stories above one another, or in any other way connected; therefore, to obtain a proportional gradation of their parts, so that they may appear consistent when thus employed, ten modules are taken from the scale of the Tuscan order, and divided into twelve parts, to form a scale of modules for the Corinthian order. (*fig.* 68.) The heights of the Tuscan and Corinthian orders are then set up from their respective scales; and the remaining part of the process is the same as that described for *fig.* 67., the diameters of the Doric and Ionic columns being found from their heights. In this case it will be observed that the diameters are not exactly the same, but decrease from the Tuscan to the Corinthian, and, consequently, all the members of the three last orders will be decreased in proportion.

Pedestals and Entablatures. — The whole height of the pedestal, which is shown with relation to the other parts of the order in *figs.* 66, 67, and 68, should be divided into nine parts, one of which is given to the cornice, two to the base, and the remainder to the dado, die, or body of the pedestal: the latter ought never to be less in height than the width of the plinth belonging to the column which it supports; and, consequently, not less in height than its own width. The following may be given as a general rule for the subdivision of the entablature: viz., the whole height, obtained in the manner shown in *figs.* 66, 67, and 68., is, in all the orders except the Doric, divided into ten parts, three of which are given to the architrave, three to the frieze, and four to the cornice. In the Doric order, the whole height should be divided into eight parts, and two given to the architrave, three to the frieze, and three to the cornice.

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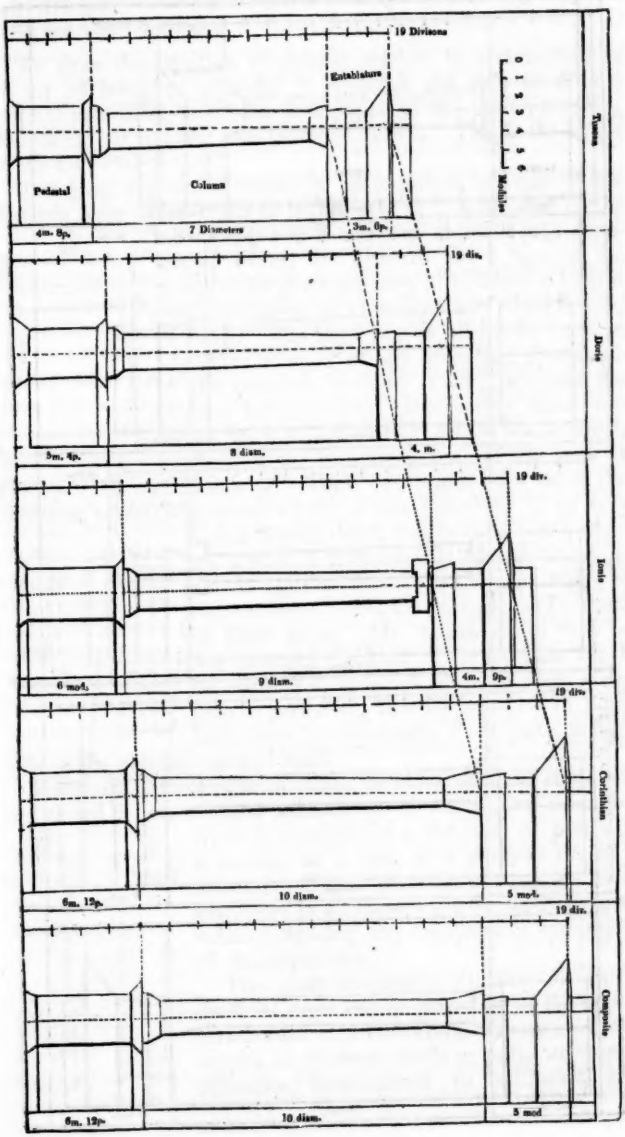
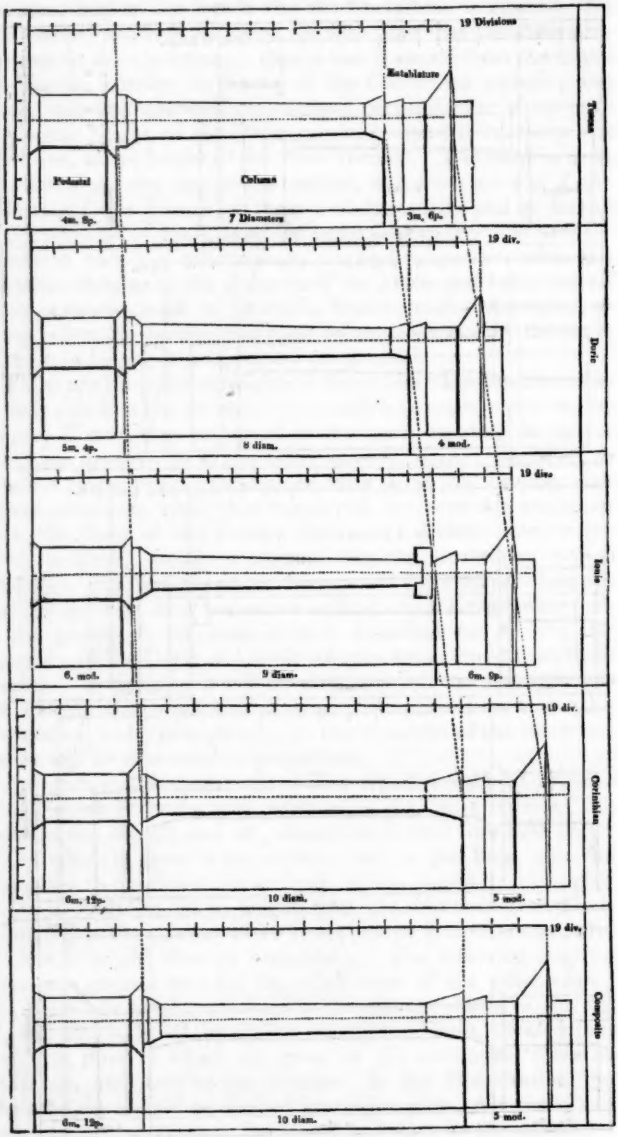

19 Divisons
Entablature
Pedestal
Column
Module
4m. 8p.
7 Diameters
3m. 0p.
Tuscan
19 div.
5m. 4p.
8 diam.
4. m.
Doric
19 div.
6 mod.
9 diam.
4m. 9p.
Ionic
19 div.
6m. 12p.
10 diam.
5 mod.
Corinthian
19 div.
6m. 12p.
10 diam.
5 mod
Composite

68


19 Divisions
Entablature
Pedestal
Column
4m. 8p.
7 Diameters
3m. 6p.
Tuscan
19 div.
5m. 4p.
8 diam.
4 mod.
Doric
19 div.
6. mod.
9 diam.
6m. 9p.
Ionic
19 div.
6m. 12p.
10 diam.
5 mod.
Corinthian
19 div.
6m. 12p.
10 diam.
5 mod.
Composite

ART. IV. *Notice of some of the Ornamental Chimney Pots and Shafts manufactured of Artificial Stone by Mr. Austin of London.* By the CONDUCTOR.

To draw the attention of general readers to architecture as an art of taste, we consider it advisable not only to discuss general principles, as in the first paper of this and preceding Numbers, but to enter into practical details. This is the object of the following article.

The great expense of stone, in consequence, not only of the distance from which it has to be brought to London, but of the labour required to cut and chisel it into ornamental forms, has hitherto put it beyond the power of the great majority of builders to bestow much ornament on chimney shafts when formed of stone. The high tax on all bricks made in any other form, or of any other size, than those of the common building brick, prevents the modern builder from constructing those enriched brick chimney shafts which are so much admired in the mansion-houses of the time of Henry VIII. and Elizabeth. These two causes have led to the invention of artificial stone, which is now improved to so very high a degree, that it may be considered, when not placed in unfavourable circumstances, as almost equally durable with some kinds of natural stone; such, for example, as Portland or Bath stone. Mr. Austin states that he has brought the kind of composition which he employs as artificial stone, to such a degree of perfection, that his imitation of Portland stone is very nearly, if not quite, as durable as the natural material itself.

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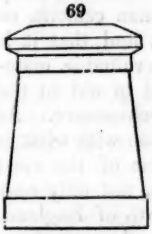

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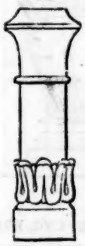
The most unfavourable situation in which artificial stone can be placed is on a moist surface, or in water: for example, when it is employed as the base or plinth of a sundial or a vase in a garden; or, as a fountain. Now, this artificial stone has been employed in all these ways for several years, without showing any conspicuous symptoms of decomposition.

72



73

The most favourable situation in which artificial stone can be placed is, as the upper termination of architectural objects; for example, as chimney shafts or pots, acroteria, pinnacles, terminations to buttresses, &c.

74

The cause of its durability in such situations is, that, when it is wet with rain, every part being equally exposed to the weather, it very soon becomes dry. The cause of its liability to decay in moist situations is, that, in such situations, it is long in drying; and that, when frost occurs while the stone is yet moist on the surface, the well known expansion of water in freezing, ruptures it, and ultimately causes it to scale off.

When to the durable properties of this kind of artificial stone it is added, that it is as easily moulded into shape as stucco, Roman cement, or cement made of lime, sand, and smithy ashes, and that it is nearly as cheap, the public may conceive what a valuable material it is, and how well it is calculated to aid in the advancement of the decorative part of architecture. As a proof that architects coincide in opinion with what is above stated, we may observe that some of the most eminent of them who have built houses, not only near London, but in stone districts in the north of England, in Scotland, and also in Ireland, where the walls have been entirely of stone, have had their chimney shafts from Mr. Austin, in order to save the enormous expense that would be required to carve them, even where the stone is got for the labour of quarrying.

75

Having said thus much respecting the quality of Mr. Austin's artificial stone, and its fitness for chimney pots and shafts, it only remains to give a few examples of the forms which he has manufactured; premising that we are not responsible for the taste displayed in them, and that they include but a very small part of the specimens which may be seen by the public at his extensive and most interesting establishment in the New Road, near Fitzroy Square. This establishment

76

77

78

has occupied the whole of Mr. Austin's time, and, we believe we might add, his money, for many years, and it richly deserves to be visited by all architects and architectural amateurs.

79

Fig. 69. is a square chimney pot of the simplest kind. Pots of this form, made of Roman cement, have been in use for the last dozen of years on the better description of houses about London. They formerly cost, by retail, about a guinea each, but they are now less than half that price.

Figs. 70. and 71. are two octagonal chimney pots, generally made of Roman cement, but far more durable in Mr. Austin's composition. *Fig.* 71., when there are five or six together, forms a very handsome termination to a stack of cottage or small villa chimneys.

Figs. 72. and 73. are elegant forms, which look remarkably well on small Italian villas, or neat blue-slated ornamental cottages. Of course, *fig.* 73. is placed on a square plinth of suitable dimensions.

Fig. 74. is a chimney pot in the shape of a baluster. The same form may be used as the shaft of a sun-dial, or as the pedestal to an ornamental vase.

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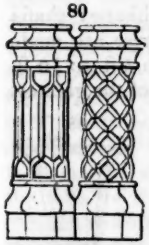
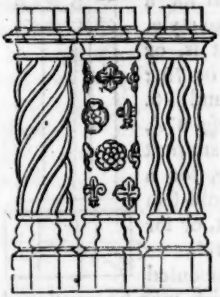


Fig. 75. is composed of several pieces; and though it is a compound of forms, some of them of the Grecian class, and others belonging to Gothic architecture, yet it has been a good deal used. It is not introduced here on account of its beauty, but as aiding to form a variety.

Figs. 76, 77, and 78. are vases calculated for being used as chimney pots. *Fig.* 77. is a very elegant form, either by itself, or on a pedestal, as shown in *fig.* 88. p. 162. *Fig.* 78. is a very handsome form, and has been much used in Italian entrance lodges.

81



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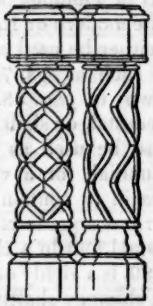
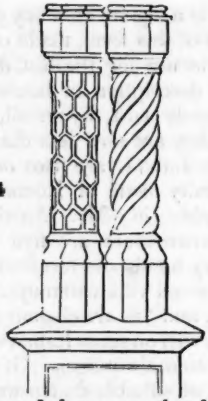


Fig. 79. is an exceedingly beautiful form, and its indented outline is better calculated for breaking the force of high winds than if that outline were smooth, as in the preceding figures, 76, 77, and 78., or even 69.

Fig. 80. represents two chimney shafts in the old English style, adapted for cottages. Shafts of this kind were generally of different patterns in the same stack, so that, formerly, when they were prevalent, they must have formed rather an expensive part of the building.

83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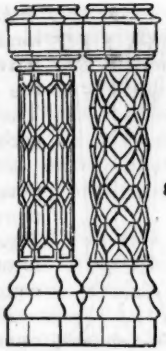
85

It must be recollected, however, that labour in those days was comparatively cheap.

Figs. 81, 82, 83, 84, and 85. are chimney shafts in the old English style for villas. These are made by Mr. Austin of various heights, from 5 ft. to 10 ft. and upwards; and they constitute one of the greatest ornaments to dwellings of every kind in the old English style.

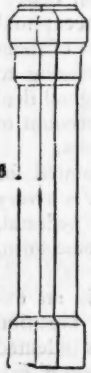
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Fig. 86. is a plain Gothic chimney shaft, well adapted for being placed as a termination to a flue in a subordinate description of offices, where the shafts on the house and on the principal offices are in the enriched style of *figs.* 83, 84, and 85.

Fig. 87. is a chimney shaft for a building in the modern or Italian style, which may either be used as it is, or with some termination, such as *figs.* 77. or 79.; as shown in *figs.* 88. and 90. This pedestal, or shaft (*fig.* 87.), may also be used as a support for a sundial, for a vase, for a stone basin to contain gold-fish or a curious aquatic plant, or for a baptismal font in a church.

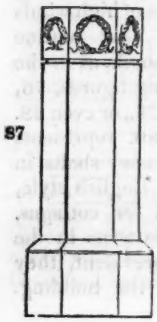
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Fig. 89. is a richly ornamented Gothic chimney shaft which may be employed for any of the purposes for which *fig.* 87. is adapted.

Fig. 91. represents a mode of terminating a stack of chimneys in which there are thirteen

89

flues; viz., three in each pier or pedestal at the angles, and one on each of the small piers. The effect in a plain building, such as a manufactory, is exceedingly good. Sometimes small pots or vases, in the form of tulips or other flowers, are superadded as terminations to each flue; and this, by breaking the force of the wind, improves the draught of the chimney. Mr. Robertson adds:—"While the form of this chimney stack is rendered light by its having the appearance of an Italian screen, the arch-headed openings serve the double purpose of ornament and utility. They are useful, because the openings must create a draught, which will assist the upward transit of the smoke; while, if the stack were solid, the wind, when interrupted in its course, would pass up to the top, and thence horizontally over the flues [unless they were broken by terminating pots], and consequently prevent the free egress of the smoke. However inconsistent it may seem to see smoke emerging from a cluster of flues, in the form of a railing or screen, the advantages connected with this manner of forming a stack of chimneys, fully justify its adoption."

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It is almost needless to observe, that, in all cases wherein the indigenous architecture of the country is imitated, the elements

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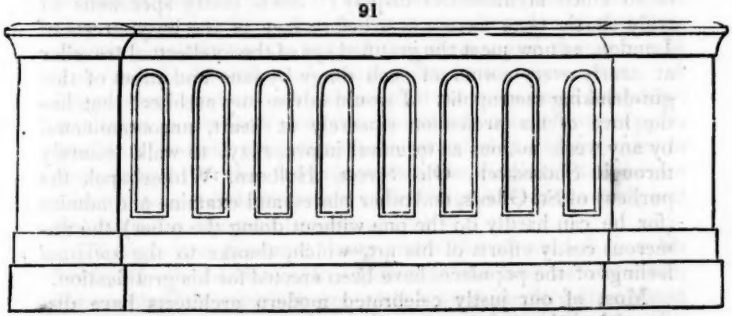

of that architecture should be employed in forming the chimney shafts and pots; and that, when classical or exotic styles are employed, recourse must be had to the elementary forms of those styles for compositions of the same kind.

ART. V. *On the Gin Temples of the Metropolis.* By CYNICUS.

AMONG the magnificent specimens of architectural skill in this metropolis, the gin temples, if not the most ancient or classical, must be allowed, at least numerically considered, to carry away the palm in splendour. As peculiar specimens of the building art, some small portion of your readers' time may not perhaps be altogether misapplied in directing their attention to them.

It is, I believe, universally admitted, that superstition, although characterised as the 'vice of weak minds,' has nevertheless been the productive parent of all the most durable and most beautiful specimens of architecture in this as well as in other countries: indeed, I may safely affirm, without fear of contradiction, that the more absurd the superstition of the country, so in proportion has been the splendour of its architecture, and the general progress of the fine arts. We have all heard of, or seen, the gigantic pyramids and catacombs of Egypt, the massive and highly enriched cavern temples of India, the magnificent temples erected to the heathen deities in ancient Greece and Rome, the splendid mosques of Turkey, and the richly ornamented and graceful cathedrals of modern Europe; and, whatever opinions we may entertain as to the (in one point) mental weakness of their authors, we cannot but hail with reverence those feelings, which were sufficiently powerful to hand down to posterity such stately specimens of national taste and individual genius.

Admitting superstition as a vice, how can we sufficiently express our gratitude to our worthy ancestors, for extracting so much good out of evil; or to our equally worthy contemporaries, for making the most extensive vice in this city the prolific source of so much architectural display? Such costly specimens of truly classic taste were never before seen in the busy streets of London, as now meet the gratified eye of the intellectual traveller at nearly every corner of each dingy by-lane and street of this gin-drinking metropolis. I would advise any architect that has the love of his profession sincerely at heart, uncontaminated by any weak notions as to moral impropriety, to walk leisurely through Shoreditch, Old Street, Holborn, Whitechapel, the purlieus of St. Giles's, and other places, and examine and admire (for he can hardly do the one without doing the other) the numerous costly efforts of his art, which, thanks to the *spiritual* feelings of the populace, have been erected for his gratification.

Most of our justly celebrated modern architects have distinguished themselves as much by their adherence to rule and order, as by the general combination of convenience and good taste, which prevails in all [?] their works: but, the present race of gin-temple builders, with a noble independence of spirit, have

indignantly shaken off all rules and trammels; and, subject only to the purse or whims of their employers, have erected order upon order in most admired disorder. He who most lavishly bestows plate glass and gilding, together with a happy corruption or combination of all the three Grecian orders into one, is the most deservedly celebrated, and the most likely to insure success to himself in these gin-drinking times.

It was my original intention to go into something like a critical dissertation on the peculiar beauties of the leading temples erected to the honour of this modern divinity; but, the more I ponder on the subject, the more unequal I find myself to the task; for, alas! who can criticise that which is subject to no rules, or describe that which is in itself indescribable?

There are, however, two or three points, which, notwithstanding the difficulty of the task, it would be unbecoming in me, as a professional man, to pass by altogether without observation. The first, which indeed must be sufficiently obvious to the most common observer, is the prevailing taste of decorating the attic story with every description of meretricious ornament; while all between the attics and the shop entablature is, in many instances, allowed to remain in primeval nakedness; a circumstance intended, no doubt, by the original inventor, to illustrate the effects produced by the numerous libations poured out to the goddess, which, at the same time that they produce crude vapours and frothy conceits in the upper story of her votaries, leave the lower parts in a state of all but perfect nudity.

The next observation I have to make is on the very late and liberal custom of hanging out a huge lamp at the entrance door; this I take to proceed from an excess of liberality in the proprietors or priests of these establishments; inasmuch as, though willing enough to profit by the vices of their poorer brethren, they are still unwilling that the poor wretches should rush into the snare uninformed as to its consequences, and therefore take this symbolical method of pointing out its injurious effects. A happy idea! and one which serves all the purpose of a signpost to a blind man: for who of their numerous tribe of worshippers would understand the lamp as a beacon light, warning them of their danger; or that it was intended, like Bardolph's nose, as a *memento mori*, reminding them of fire internal in this world, and fire eternal in the world to come!

There is one gentleman even more liberal-minded than his brethren, who has lately, in addition to the lamp before stated, surmounted his establishment with a magnificently illuminated clock, than which nothing surely can more plainly intimate the value of time to a reflecting mind. But, alas! I am afraid the worshippers are not burthened with much reflection; and well the officiating priests know it, or they would not run the risk of

hanging out such plain-speaking symbols. Much more might be added; but I am afraid I have already trespassed too much on your pages and your readers' patience, and must now bid you farewell. CYNICUS.

London, March 12. 1834.

NOTWITHSTANDING the amusing observations of our correspondent Cynicus, we are friendly to the gin temples, as they are called; because we look upon them as the first dawning of a more enriched and varied taste in street architecture than we have hitherto had in London. As to the incorrectness of the architectural taste of these elevations, we think the injury it is likely to do much less, in the infancy of this kind of improvement, than the good which the buildings themselves will effect by setting the example of increased architectural embellishment. Let other tradesmen begin to decorate the fronts of their houses; and, when this fashion becomes general, there will be a demand for a more refined taste, which will not fail to be supplied and displayed. We question much whether the ultimate arrival at good taste in this way may not establish it on a surer foundation, than if the architects of streets had begun at once by correct and elegant designs. It is not by being led blindfold into that which is excellent, that excellence is established; but by passing through error, and undergoing correction; and finally learning from experience what excellence really is, and, of course, appreciating it accordingly. — *Cond.*

ART. VI. *Further Observations on the Choice of a House.* By I. J. KENT, Esq. Architect.

HAVING carefully examined the nature of the soil, the drainage of the premises, the strength and durability of the walls and timbers, and the ability of the roof to keep out wind and water; the next subject to which I will direct your attention is the manner in which the house is lighted; as the cheerfulness and healthiness of a house depend much on abundance of light, and that the light be equally distributed. A room is always more cheerful when light is admitted at both ends: when this cannot be obtained, choose a room where the windows are placed in its longest side, and, if possible, at one end also; but on no account choose a room to pass the day in, that is lighted by a borrowed light, or a skylight. Our happiness depends much more than is generally supposed on the cheerfulness or dulness of the room which we occupy during the day, and on its fittings-up and furnishing: it is next to impossible to have buoyant spirits and agreeable thoughts in a dark half-lighted room.

The windows, to light a room cheerfully, should be brought down as low as the nature of the occupation of the room will allow, and be carried up as high nearly as the cornice. None of the sashes should be fixed, and particularly all the upper sashes should be made to open; as the confined air is more speedily and effectually expelled by opening the upper than the lower sashes, and therefore, in sleeping-rooms, the upper sashes should be opened every fine day. Unfortunately, in houses

occupied by the poor, the upper sashes are seldom hung; and the close unwholesome air is therefore never effectually dispersed, even when the windows are opened.

All windows should be provided with shutters inside, where comfort is an object. They afford the only effectual means of excluding the light, which is sometimes so desirable in cases of illness; and they keep the rooms warmer in winter, and cooler in summer, to say nothing of affording security from thieves. In the best rooms they should be made to fall back into boxings, contrived to receive them during the day; but, where the rooms are small, the shutters may be made to slide up and down, in order that they may occupy less space, and not prevent you from having curtains to the windows.

Smoky chimneys are an insufferable nuisance; they are in some situations very difficult to cure, and they arise from a great variety of causes. One, amongst others, is building the openings too shallow, in some instances only 9 in. deep: they should never be less than 14 in., and are better if 18 in. You may then have an old-fashioned, it is true, but convenient and satisfactory, safeguard against fire, where, as it frequently happens, a fire is left in a room without any one to attend to it; I mean, the circular wire fireguard, which turns round in front of the fire, when you require its use, and passes out of the way behind the grate when not required; and which is, like a sincere friend, always ready to be used when most wanted.

While examining the fireplaces, see if the hearth slabs are very narrow: if they are, you may expect the chimney-pieces to be of an inferior description. Marble chimney-pieces should be carefully looked to, as it frequently happens that they are contracted for at some incredibly small sum compared with their appearance, and put together with old marble, the stains in which often become visible again, when they are exposed to the heat of the fire. The sides, or profiles, the slips, and the soffits, or undersides, of the shelves, are often not more than one fourth of an inch thick, and sometimes they are even less than that. All these things it is of importance for the tenant to examine; as, should the chimney-pieces fail, and become dilapidated, he will be called upon by his landlord to restore them to a sound state and condition, at an expense most likely greater than their first cost.

The floors of the inferior kinds of houses are mostly laid with white deals 9 in. wide, and often not more than $\frac{3}{4}$ in. thick. They should be generally of yellow deal, and never less than 1 in. thick, at least they should be invariably so in the basement story; and they should never be of soft spruce deals. These deals may easily be detected by your finding small round holes in the boards of the floor, where the hard knots have fallen through; for, from the soft spongy nature of this timber, it shrinks so much,

when thoroughly dry, that the knot falls out. From the shrinking of this wood, the joists of floors laid with it often open a quarter of an inch wide, so as to require the floor to be taken up and relaid, or slips or fillets of wood fitted into each joint; and if you do not remedy the evil, the water, every time the floor is scoured, finds its way through these open spaces on to the ceiling of the room below, and not only discolours, and even destroys it, but in time decays the laths, as well as the plastering. In good houses, batten floors, that is, floors laid with narrow boards 1¼ in. thick, are used in all the best rooms: inch deal floors are put in the upper servants' rooms; and 1¼ in. yellow deal floors in the rooms that have boarded floors in the basement story. Floors of the best kind are doweled with pins of hard wood, or of iron, driven into the edges of the boards, and connecting them closely together, without nailing them to the joists. As a substitute for doweling, floors are nailed only on the outer edge of the boards, through which edge the nails are made to pass obliquely into the joists, so that, when the floors are finished, no nails appear.

Whenever you find the soffit of a window or doorway sunk, so as to impede the door or shutter from closing easily, it should be examined: it will generally be found to arise from the weakness of the lintel, and that the arch in brickwork, which should be turned over every opening where it is possible, has been omitted. This must be remedied without delay, or it will get worse.

The internal appearance and comfort of a house depend much on the staircase; and there are two classes of persons, the very young and the very old, who are materially inconvenienced by an ill-constructed staircase. The best staircases are those without winders [those steps where the stair makes a turn, without a landing, and which steps, of course, are broader at one end than at the other]; where the height is divided into two or three flights of steps, by half paces or spaces, or quarter paces. [A pace, or space, in a stair is a level or platform, occurring between flights of steps, and not forming a landing-place, or platform, to a floor.] In a good staircase the height of each step should not exceed from 6 in. to 7 in., and the width of the tread should be from 11 in. to 12 in. Of the two evils, viz., a high rise and narrow tread without winders, or an easy rise and broad tread with winders, choose the staircase with the winders, as the easiest and safest: but never choose a staircase, the steps of which are continued straight up a whole story without landing-places or winders. Stone staircases are very desirable: they are, when properly constructed and executed, much superior to wood, as they are noiseless, and a security in case of fire. Knowing that the public always fully estimate their value, some builders have

erected stone staircases in the houses they have built; but, to avoid expense, or from ignorance, they have executed them so improperly, that the lives of those who pass up them are in great danger. This remark refers to stone staircases let into 4 in. timber partitions, which are brick-nogged [wooden framework filled in with bricks], and have pieces of wood nailed above and below the steps, to keep them from falling. The half-pace landings are sometimes composed of two stones carried across the opening of a window, the window being part below and part above the landing. A stone staircase should never be pinned into a wall of less than 9 in. thick; but when the steps are of a considerable length, that is, above 3 ft. 6 in. out of the wall, the wall should be 14 in. thick. Another piece of negligence is not uncommon; the party-walls, in such houses as have stone staircases (which are first, second, and sometimes even third rate houses), being lofty, and containing a great number of flues, and being only two bricks thick, it follows that a great part of the wall, instead of being two bricks thick, is only two half bricks thick, between which the flues pass: so that, when the mason cuts into the wall to fix the end of the step, the flue is broken into, and part of the step passes into the flue, and is there left for the soot to lodge on; and, if carelessly pinned in, the smoke, should the skirting be of wood, is thereby allowed to escape into the house. This evil is often occasioned by the carpenter cutting into a flue, when making a hole to fix the bearers for his landings, which having wedged, he, without directing the bricklayer to fill up the spaces he has left round the timber with brick and mortar, fixes the skirting, and the evil is often not found out until the chimney takes fire. Where there is any doubt or suspicion of this being the case, it would be advisable to make fires in the flues, and put some damp hay or straw on these fires, so as to cause a large quantity of smoke to ascend, and then to open the windows; by this means the evil, if it exists, may possibly be detected.

The next subject (and it is one of great importance to the comfort of a house) is water. The facility of obtaining water in the upper part of houses in London and its vicinity, and the moderate charge made by the water companies for high-service, may, I think, induce you to require a capacious cistern in the roof, if possible; or, at all events, on the attic or two-pair floor of all houses of 60*l.* or 70*l.* a year and upwards. The expense of a cistern and pipes to convey the water to the upper part of a house (supposing the house unfinished, or undergoing a thorough repair) is so small, at the present low prices of plumber's work, and the advantages of having an abundant supply of water in the upper part of your house so great, that, where the difficulties to be overcome are not of a very serious nature, every one

who consults his comforts, the saving of his servants' time, and the means it affords, in cases of fire, of saturating the floors with water, and thereby preventing the fire from spreading downwards, will seriously consider this subject before he decides on allowing the opportunity of obtaining these advantages to pass by him. Besides saving the time of carrying water from the basement story up three or four flights of stairs, a cistern in the upper floor affords the means of having a bath at but little expense; of providing your servants a sink on the attic or two-pair floor; of having a water-closet in the upper part of the house (a great convenience, particularly where there are children, or two families, in a house); and of supplying any or all of your best bedrooms or dressing-rooms with water, by means of a fixed basin, with a supply-pipe and cock; and which may also have a plug and waste-pipe, carried either into the trap of the water-closet, or into the rain-water pipe. This is a comfort that can scarcely be estimated by any one by whom the luxury of it has not been enjoyed.

In the choice of a house, therefore, the capaciousness, construction, and situation of the cisterns for the supply of water are matters to be carefully looked to; or you may, perhaps, find it necessary to incur a considerable expense in providing the quantity of water you need, should the house you are about to take not require to be repaired, and should you thus not have a convenient opportunity of fixing a cistern in the upper story. In the present day, every privy should be a water-closet: let the construction of it be ever so common, still water should be supplied, and that liberally. Where the expense of a proper closet is inconvenient, or the occupancy of the house of an humble kind, an iron hopper set in brickwork, and supplied with water by a pipe and cock, will answer the purpose. Connected with the water-closet is the drain by which the water is carried off from it, and, generally, the sinks and other parts of the house. From want of proper care in the construction of the drains, many houses, otherwise very comfortable and healthy, are rendered the reverse, by offensive and noisome smells. This arises either from there not being proper traps, or from the covering or sides of the drains being insecure, and permitting the impure air to escape. Enquiry should be made as to the construction of the drains before a soil-pipe is permitted to enter one. Where soil is permitted to enter a drain, the drain should be rendered with cement half round the bottom inside, and all over the top outside, and covered with earth, of which clay is the best kind.

Attention should be directed to the fastenings, which are often of a cheap and inferior description; and thus are a source of continual annoyance, from the locks getting out of order, and the bars, bolts, &c., not acting properly.

Closets, when properly fitted up, and of a sufficient depth to be useful (that is, when the shelves are at least 12 in. wide), are a very great convenience; but, when the shelves are only 8 in. or 9 in. wide, the closets generally become sluts' holes, and the receptacle of all the rubbish of the house. When they are put up independently of the plastering, that is, unconnected with the plaster, or with the walls not plastered at all, they should be lined all round with deal, and made air and dust tight. If it can be avoided, they should never be placed against an external wall, unless the wall is battened. [To batten is to fasten narrow strips of wood against a wall, on which plaster laths are nailed, or canvass stretched, so as to preserve a vacuity between the plaster or the paper and the wall.] External walls, indeed, should always be battened in good rooms, as there is but little dependence on freedom from damp when the external walls are plastered on the brickwork, and the precaution of battening is neglected.

It frequently happens, even where the principal walls, roof, and floors of a house are sound and strong, that the middle partitions are infirm and weak: these, therefore, you should examine; for it is too common to find, either from the bad materials used in the walls in the basement story, or from neglecting the foundation, or, more frequently, from the bad construction of the timber partitions, that they sink. The consequences are, that the floors become out of a level, the doors do not fit their openings, the gutter-plates that rest on these partitions sink, and cause the water to lie in a pool in the hollow part, and the plastering and cornices crack. This, although a serious evil, is not always insurmountable, as it frequently occurs from the hasty manner in which buildings, particularly those built on speculation, are erected, the partitions being plastered before the building has settled to its proper bearing; and, when arising from this cause only, it may be remedied. One of the first questions asked by many gentlemen who are about to have a house built, or to have alterations made, is, "How soon is it in your power to get the works completed?" and, generally speaking, the shortest possible time is allowed. This is a great error: a sufficient time to dry and season the materials (particularly in the bricklayer's and carpenter's work) should be allowed, before the joiner's work or plasterer's work is begun, in order that the defects arising from the shrinking of the timbers, and any unequal settling of the brickwork, may be remedied before the finishings are fixed. Should any settlement take place afterwards, the finishings, being attached to the brickwork and rough timbers, must necessarily partake of any unequal settlement or change of position that may occur in them.

I. J. KENT.

Manor Place, Paddington, March, 1834.

ART. VII. *An Account of the Origin and Progress of heating Hot-houses and other Buildings by the Application and Circulation of Hot Water, instead of by Fuel or Steam.* By GEORGE COTTAM, Esq. F.H.S. Z.S., Associate Member of the Institution of Civil Engineers.

As the practice of warming buildings by steam preceded that of heating them by means of the circulation of hot water, it may not be uninteresting to notice the commencement and rapid progress of that invention; more particularly as the mode of heating buildings by steam is very similar in its operation to that of heating them by hot water.

The first notice recorded of heating chambers by steam is to be found in the *Philosophical Transactions* for the year 1745, wherein it is stated that a Colonel William Cook had suggested the idea of warming apartments by the application of steam: it does not, however, appear that he carried his intention into effect.

In the third number of the *Journals of the Royal Institution*, Count Rumford mentions heating by the application of steam, and proceeds as follows:—"This scheme has frequently been put in practice, with success, in this country, as well as on the Continent." From this passage we might infer that heating by steam was well known in this country at the period alluded to; but I have never been able to ascertain where, or by whom, it was adopted. Buchanan, however, in his *Essays on the Economy of Fuel and the Management of Heat*, remarks:—"I have not been able to learn that any thing of importance was done previously to the use of steam in warming cotton mills, although we find a patent for heating by steam was granted to John Hoyle, dated 7th of July, 1791, and to John Green, dated the 9th December, 1793."

About the same period, Mr. Watt, being engaged in making various experiments on steam for other purposes, was naturally led to consider the subject of applying it to the warming of buildings. Buchanan informs us that, about the year 1784 or 1785, probably during the intervening winter of those two years, Mr. Watt had recourse to steam for the purpose of heating the apartment wherein he usually wrote. This room was 18 ft. long, by 14 ft. wide, and 8½ ft. high; and the apparatus consisted of a box or heater formed with two side plates of bright tinned iron, about 3½ ft. in length, by 2½ ft. wide, kept an inch distant from each other, by means of stays, and joined round the edges by other tin plates. This box was placed upon its edge near the floor of the chamber, being furnished with a cock to let out the steam, and a pipe, proceeding from its lower edge, communicated with a boiler in an under-apartment; the said pipe serving to convey the steam, and return the water. The effect produced

by this apparatus was less than had been calculated by Mr. Watt, which may now be explained, by the experiments of Professor Leslie on the heat transmitted from a polished surface.

Mr. Bolton, at the close of the year 1794, assisted the Marquess of Lansdowne in the improvement of an apparatus, erected by a Mr. Green, for warming his library by means of air heated by steam: the use of this apparatus was, however, abandoned, in consequence of some defects in the pipes or joints. Twelve months afterwards, Mr. Bolton superintended the erection of a similar apparatus for his friend Dr. Withering's library. This apparatus, as regarded heating, proved altogether satisfactory; but it was soon obliged to be disused, in consequence of the pipes, which had been constructed of copper and softly soldered, emitting, in some parts, a most disagreeable effluvium, which rendered it unpleasant to Dr. Withering, who was then in an infirm state of health, and suffering from a disease on his lungs. The apparatus was in consequence removed to Soho, near Birmingham, where Mr. Bolton proposed its being erected at his own residence, in which he was then making considerable improvements; having, among other things, resolved to heat every apartment in the house by means of steam. A boiler was, in consequence, fixed in one of the cellars; but circumstances subsequently intervened to prevent the plan from being carried into execution.

About the year 1798, we find that Mr. Watt heated his bath by steam; and, in the course of the ensuing year, that Messrs. Bolton and Watt proceeded to fix cast-iron steam-pipes in various mills and manufactories throughout England and Scotland. These pipes soon came into general use; and, in 1807, Buchanan published his pamphlet containing an *Essay on the Warming of Mills and other Edifices through the Medium of Steam.*

In 1810, Buchanan published his *Practical and Descriptive Essays on the Œconomy of Fuel and Management of Heat*, which were duly noticed in the various scientific periodicals of the day. The use of steam having thus become general for warming public edifices, cotton and other mills, it was forthwith applied to horticultural purposes, such as forcing-houses for grapes, pineries, &c.; and was most efficiently resorted to by those spirited cultivators, Messrs. Loddiges of Hackney, on a grand scale, for heating their forcing-houses and stoves, where it was attended with so much success, as to supersede the use of brick flues. This favourable trial caused it to be adopted in various similar but minor establishments, where, however, it was not attended by equal success, from causes I shall more particularly demonstrate when engaged in comparing the value of warmth derived from hot water, with that produced by steam. This brings me down to the period when heating by hot water first

came into notice, in consequence of the experiments of a most ingenious and spirited gentleman, Anthony Bacon, Esq., of Aberaman in Glamorganshire, and, subsequently, of Elcot in Berkshire. The gentleman in question having made some experiments at his first residence in Wales, proceeded to put his plans into practice, more in detail, at his last-mentioned estate, where he immediately perceived the great advantage of heating forcing-houses by means of hot water. In consequence of these primary steps, a letter was addressed to the Horticultural Society of London, by Mr. Whale, gardener to Mr. Bacon, subsequently published in the *Gardener's Magazine* (vol. iii. p. 186.), which brought this system into notice; and, on its being generally adopted, several persons started up as claimants of the invention, when the *Gardener's Magazine* for 1828 became the grand arena for discussing the disputed point. Among the foremost claimants were Mr. Atkinson, Mr. Bacon, and Messrs. Bolton and Watt. During the progress of the discussion, numerous statements were adduced, by which it was most satisfactorily proved by Mr. Bacon, that he had preceded Mr. Atkinson in the idea, as well as in the trial; and that the latter gentleman derived his knowledge of the plan from inspecting Mr. Bacon's machinery. It became no less evident, from the facts elicited, that the idea or principle did not originate even with Mr. Bacon, as the Marquis de Chabannes had taken out a patent for precisely the same invention in the year 1814; and had also published a pamphlet, in 1815, containing plans, amply developing the nature of his patent, and proposing to diffuse heat through the medium of hot water, as applicable to vineries, hotbeds, pineries, dwelling-houses, &c. As a farther proof of the efficiency of his plans, he proceeded to put them in practice at the shops, Nos. 36. and 37. Burlington Arcade, as well as at No. 1. Russel Place. An extensive conservatory and vinery at Sundridge Park, near Bromley in Kent, the seat of Sir Samuel Scott, Bart., was also heated by the Marquis de Chabannes, in 1816, by means of hot water. The dwellings previously mentioned were publicly exhibited, and might, consequently, have undergone the inspection of those persons who laid claim to the discovery in the years 1821, 1822, and 1823. Notwithstanding this, and although the Marquis de Chabannes appears to have been the first individual who made the plan public in England, Messrs. Bolton and Watt stood forward as claimants to priority as to the adoption of the system in question; for, in a letter addressed to the editor of the *Gardener's Magazine*, under date March 18. 1828, and published in that work, vol. iv. p. 30., we find as follows:—

"We may briefly observe, that the attention of this firm has been directed to the employment of steam and hot water as media for the transmission of heat upwards of *fifty years*, and

they have been used by us, with that view, under almost every modification, in the warming of rooms for all the various operations of manufactories, for habitations, for the heating of baths, vats, and various other purposes. Preference was given to the one or other according to the circumstances under which the application of heat was required, steam being naturally preferred for the more rapid diffusion of a high temperature, and water substituted when the heating of that liquid to a low temperature, or the steady maintenance of such a temperature in a room, was the object to be attained. The application of these principles to the warming of hot-houses has not attracted much of our attention, not possessing ourselves any house of that description; but the adoption in them of modes of heating practised in other buildings, where analogous desiderata were attained, must, we conceive, be a natural consequence of the diffusion of the practice.

"Whenever the horticulturist determined it to be a primary consideration, in the heating of the hot-house, to preserve with the least fluctuation any given degree of atmospheric temperature, the advantage of employing water, in preference to steam, for the attainment of that end, was obvious, and could not fail to present itself to any mind conversant with its use for that purpose. The practicable attainment of it could not be attended with difficulty, as it had long been effected under analogous circumstances."

From the above observations it would appear that the system of heating by hot water was in use in England in 1778; but the assertions contained in this letter do not seem to agree, in point of time, with the origin adduced of the discovery, by Messrs. Bolton and Watt, of heating by means of steam. After every enquiry that has been set on foot, it appears that the earliest date, at which the appropriation of steam by Mr. Watt for the purposes of warming buildings was resorted to, took place in his own apartment during the year 1784 or 1785, which experiment proved extremely defective; while the steam apparatus adopted by Doctor Withering (previously adverted to) was not set up until the year 1795 or 1796. The first perfect machinery used for this purpose was erected in the cotton mills of Mr. Lee of Manchester in 1799; and we find Buchanan, as previously observed, publishing his *Essays on warming Mills and other Structures* in 1807, and his *Essay on the Œconomy of Fuel and Management of Heat in warming Mills and other Buildings* in 1810, wherein very frequent mention occurs of Messrs. Bolton and Watt, yet no notice whatever is taken respecting the circulation of heat by means of hot water passing through pipes having been adopted by those gentlemen. This omission appears very singular; since it might have been naturally supposed that so simple, efficient, and beautiful a system of diffusing heat could not possibly have escaped the penetration and industry of such a genius

as Buchanan, had it been then known to have attained public use. What tends more to create astonishment at this silence upon his part is, that we find a very extensive list inserted in his works, of all buildings wherein steam had been applied for the purposes of warming, drying, and heating. Another work was also published by Tredgold, in 1824, *On the Principles of warming Public Buildings and Hot-houses by Steam*, wherein no mention whatsoever is made of hot water being circulated through pipes, for the purpose of heating buildings; although he alludes to the idea of cooling apartments by means of the circulation of cold water through pipes. In addition to the above observations, it may be necessary to remark, that, in the progress of a discussion that continued for six years, no previous claim was made to that adduced by the Marquis de Chabannes; neither has a single hot-house, stove, building, or any apparatus whatsoever, been pointed out, as having existed anterior to those erected by the marquis. Under the above considerations, I am rather tempted to suppose that Messrs. Bolton and Watt must have misunderstood the application made to them by the editor of the *Gardener's Magazine*. I cannot terminate these remarks without observing, that it would not only have been interesting, but satisfactory, had Messrs. Bolton and Watt, when communicating their information to the Magazine above quoted, pointed out two or three of the buildings wherein they had put their earliest applications of the hot-water system into effect. However, notwithstanding the observations previously adduced, I find the plan of warming rooms by hot water preceded that of heating by steam, as it appears that a physician of the name of Bonnemain, in or before the year 1777, possessed a large building, several stories high, heated by the circulation of hot water through metal pipes; and that, by means of the same process, he produced artificial incubation, having hatched chickens for the court of Louis XVI., and regularly supplied the markets of the French metropolis, as will be more fully detailed hereafter. It is by no means improbable that Mr. Watt, or Dr. Black, or some of the other eminent men in communication with him, might have perused Bonnemain's description of the apparatus he had adopted. However, there can be little doubt but the Marquis de Chabannes was perfectly conversant with the plans which had been resorted to by Bonnemain.

In my next article, in continuation of the present, I shall describe the apparatus employed by M. Bonnemain, which he called a *calorifère*, and employed on a large scale for the hatching of chickens; and I shall next describe, in succession, the methods of Chabannes, of Bacon, of Atkinson, of Fowler, of Kewley, of Weeks, of Perkins, and, in short, of all our British engineers to the present time.

REVIEWS.

ART. I. *Suggestions for the Architectural Improvement of the Western Part of London.* By Sydney Smirke, F.S.A. F.G.S. Large 8vo; pp. 117, with a folding map, and two lithographic views. London, 1834.

THIS work is characterised by great moderation and good sense; and is, therefore, the more likely to attain the end which its author has in view. This end we shall lay before our readers in the following brief abstract:—

The author commences by what some will, perhaps, consider rather an unnecessary task; viz., that of combating the usual arguments against improvement; and by showing, that, owing to the immeasurable increase of our traffic, it is necessary to have our streets straighter and wider. He next goes on to show the great obstacle thrown in the way of alterations, by the dread of interfering with the property of individuals; and regrets that more of the land on which London is built did not belong to the crown, or to corporations. The most striking improvements in the metropolis, he says, have been made either by the crown officers, or the corporation of London and its dependent companies. The same has been the case in most of the provincial towns. It is under a sense of the great difficulties that lie in the way of all improvements, in such a metropolis as London, that the author has studiously endeavoured to exclude from his pages all chimerical projects; and he therefore expects "something more than the usual amount of attention which similar lucubrations have hitherto received." He has given few suggestions, indeed, which do not recommend themselves as improvements; and many of them demand only a comparatively moderate outlay of capital. "It should be remembered," he says, "that the increased value of ground and houses, in the immediate vicinity of the parts improved, would, in many cases, be a source of considerable profit. As soon as a communication between different parts of a city is established, by opening a wide, commodious, and direct avenue, the public are not slow to accept the advantages which it offers: houses of a higher consideration and value are immediately required in it; and it is not difficult to conceive, that, in many instances, the owner of the property may be more than repaid for any loss of space to which he may have submitted." (p. 11.) This is perfectly true; while, at the same time, it confirms the author's preceding remark, that the great obstacle to improvement is, where the property is divided into fractions of not more than one, two, or a few houses each; instead of being in masses, built on half an acre, an acre, or upwards.

In the case of London, Mr. Smirke observes:—"It should not be overlooked that a great part of the west end of the town is covered with houses built long before the existence of the present Building Act; and that they are consequently precarious property, requiring a higher insurance, a greater annual expenditure in repairs, and, therefore, obtaining a lower rent, than houses of a more recent date and better construction." (p. 12.)

In this part of his work, the author remarks, "that no mechanical art has, within late years, experienced improvements more numerous and important than that of building. An old house in London is rarely pulled down without revealing a construction faulty in principle, and careless in execution. Common sense is shocked by finding a thick wall of brickwork, carrying, probably, three or four floors besides the roof, built over a void space, upon a piece of timber, the ends of which are, of course, liable to become rotten in a few years; and the whole of which may be, and often is, reduced to ashes in a few minutes: yet this mode of construction was universal, until lately, in our shops, and, in truth, is still allowed to be practised by some builders, who have not yet opened their eyes nor used their understandings. The substitution of iron for timber is an improvement in the art of building that can hardly be overrated: it has banished at once the unwieldy girders which our ancestors were wont to truss, until they could hardly support their own

weight; it has given us pillars that neither fire nor water can affect; and may almost be said to have afforded us the means of erecting an indestructible house. The very expensive, and often unsuccessful, process of piling for foundations has but of late years yielded to the use of the artificial concrete substratum; the surprising strength and imperishable nature of which give it a value that cannot be too highly estimated by the architectural practitioner. The mode of baking bricks in clamps, instead of kilns, is a practice unknown until recent times, by which their hardness and durability are greatly increased; whilst, with regard to timber (the other most important material of a building), it is hardly extravagant to say, that the late introduction of the tanking process [by which timber is saturated with corrosive sublimate] bids fair, at no distant period, to render the destructive ravages of the dry rot a matter of tradition. Such are some of the improvements (and there are many others not necessary to be enumerated here) of which the proprietor of land in the streets of London may avail himself at the present day, to increase the value and permanence of his property." (p. 14.)

We pass over what the author says on the importance of the improvement of a city to the health of its inhabitants; not altogether because this, to the readers of such works as that of Mr. Smirke, is self-evident; but, because we think we can occupy the space which we can devote to the review of this work more usefully to our own readers.

Mr. Smirke has abstained from saying much on the opportunities which improvements, in the widening and straightening of streets, would offer of increasing the architectural beauty of street buildings; because he very wisely considers this as an object but of secondary importance. The inferiority of London, in point of architectural merit, to many of the Continental capitals, our author observes, "must have forced itself on the conviction of every traveller who has quitted the shores of his native country; and our neighbours are ready enough to draw thence very plausible inferences in disparagement of our taste and genius. That the standard of public taste is lower in England than on some parts of the Continent, must probably be conceded. In those branches of our manufactures which more especially seek aid from the arts of design, our general deficiency in this respect is evinced by an almost total want of originality. French books of patterns are the text books of our operative artists, who seem ambitious of nothing beyond a successful imitation. In carpets, cottons, silks, paper-hangings, and furniture, there is alike the same poverty in decorative design. Even the natives of China and India are in some respects our masters; for the delicacy, variety, and richness of their designs are not unfrequently even beyond our imitation. In consequence of the incompetency of English manufacturers on this point, our French neighbours have usually been successful competitors with us in all those branches of trade that depend on the arts of design; and thus our want of feeling for the fine arts, and the defective cultivation of the public taste, become important in the view of the political economist himself.

"A man of ordinary observation, who has had an opportunity of becoming acquainted with the principal cities of Europe, has only to walk through the streets of London, to convince himself that we are at present a people deplorably devoid of a taste for the picturesque. Where, except in this country, shall we find streets of interminable length, composed of houses without cornice, architrave, or any of the most simple features of architectural decoration? We look in vain for a Corso, a Strada Nuova, a Canal Grande, or a Herren Gasse; and the noblest and wealthiest of the most opulent country in the world are, for the most part, content to shelter themselves, during the season of their residence here, in houses utterly destitute of all the dignity or grace of architecture.

"The slow progress of our national museums and galleries, and the inadequate funds destined for their completion and support, are proofs, it is to be feared, of the same tasteless habits; of the same Bœotian insensibility to the attractions of a refined and rational pleasure. It is indeed humiliating to

contrast our parsimonious tardiness, in this respect, with the bold munificence of other countries. Whilst we have been deliberating and doubting, Berlin has raised a beautiful gallery, worthy alike of its accomplished author, Schinkel, and of the country that has earned celebrity by so many enlightened reforms. Even the state of Bavaria, a country of very limited territorial extent, can point with just pride to the noble work of Klenze; a production, in point of magnitude and magnificence, far removed beyond the range of our economical conceptions. In addition to this latter gallery, Munich has lately raised another monument to its taste, in the Glyptothec, consisting of a range of sculpture galleries sumptuously finished, and covering a prodigious extent of ground; a magnificent public library is in progress; whilst a theatre, larger than the largest in London, a royal palace, an observatory, and many other buildings of great beauty and importance, are striking evidences of that enlightened taste for the peaceful and elegant arts which distinguishes the present sovereign of Bavaria."*

Mr. Smirke next proceeds to enquire what aid might be reasonably expected from the legislature, towards the adoption of some systematic general plan of municipal improvement; and he suggests the examination and collation of the different acts which have been passed on the subject of London improvements, in order to select what was good; and also the formation of a permanent Board, or Municipal Commission. Nothing better, perhaps, could be suggested under the present circumstances of the metropolis; but, in our opinion, the whole space included under London and its suburbs, say within a circle of five miles from St. Paul's, with power of extension, ought to be formed into a representative municipal government; and, this having been done, every thing connected with general improvement would come under the cognizance of a proper department, and be discussed in public, and consequently open to the criticisms of the press. No system that we can think of is calculated to be more perfect than this; and the legislature is now making approximations towards it, in the present corporation reforms.

Before the author proceeds to describe his plans in detail, he takes a brief retrospective view of the west of London, from the time of the Norman princes to the present day; and, proceeding from the western gate of the fortifications nearest to the Thames, named Lud-gate, he surveys the whole country as far as the village of Charinge, and the Marsh of Westminster, on the one hand; and to Clerk's Well, Old Bourne Bridge (now Holborn), and the village of Tybourne, now Mary on the Bourne, or Marylebone, on the other. But we pass over this entertaining part of the work, having barely left ourselves room to enumerate the most obvious improvements proposed.

Among the general principles to be kept in view in laying out the streets of a town, one of the first is, to admit of its being penetrated in all directions in straight lines. A second is, that, towards the centre or most public part of the town, the streets ought to be broader than at the remote and less frequented parts. By streets penetrating in all directions, it is not meant to be implied that there should be diagonal streets through square compartments of buildings; but merely that there should be a facility in passing from any one part of the town to any other part. This, it is obvious, may be effected in a town composed wholly of squares of buildings, provided these squares are not too large. When they are very large, this can only be accomplished by streets in oblique lines. The most perfect form of the ground

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* We saw the work of Klenze alluded to, the Pinakothec, and also the Glyptothec, at Munich, in 1828, and we have given an elevation of the Pinakothec in the new edition of our *Encyclopædia of Gardening*, p. 145., and of the Glyptothec and a plan of its surrounding garden in the *Gardener's Magazine*, vol. ix. p. 401. The Tuscan palace at Munich we consider a much grander piece of architecture than either; an engraving of it will be found in our *Encyc. of Architecture*, p. 953. — *Cond.*

plan of a large town would be that of a circle, with all the public buildings in the centre, and all the streets either radiating from that centre, or forming concentric circles or segments to it. Such a plan, combined with what we have called breathing zones, or public gardens, promenades, and places for markets, &c., we have given in the *Gardener's Magazine*, vol. v. p. 687.; and we have there shown how it might be applied to London, and to towns generally. Mr. Smirke's improvements are all projected on the same fundamental principles as those which we have laid down; but the most scrupulous regard has been had to apply them in such a way as to require the least possible number of houses to be taken down. A straight line is very properly, in our opinion, never made a desideratum by Mr. Smirke; unless where a number of small houses and narrow lanes come in the way; as, for example, in St. Giles's, and in some parts of Westminster.

It only remains for us slightly to mention a few of the lines proposed by Mr. Smirke; because, though the principle is of general interest, yet its application to London renders the details local. Oxford Street is to be continued in a straight line to Holborn; Piccadilly through Leicester Square to Covent Garden Market, and thence to Temple Bar; the Strand through the Mall in St. James's Park to Chelsea; St. James's Street, across St. James's Park to Rochester Row and Lambeth Road; the Haymarket is to be continued to Oxford Street; and St. Martin's Lane and Wellington Street, from Charing Cross and Waterloo Bridge, into Oxford Street and Holborn, &c. A number of other subordinate improvements, and particularly one for building villages for the working classes, we must defer noticing till a future opportunity.

ART. II. *Catalogue of Works on Architecture, Building, and Furnishing, and on the Arts more immediately connected therewith, recently published.*

BILLINGTON's Architectural Director, Parts II. and III., 8vo, price 2*s.* 6*d.* each. The plates in these two numbers are very accurate, and very well executed.

Whiting's Designs for Shop Fronts, 4to, 12*s.* 6*d.*, is announced.

A View of the Indigent Blind School, St. George's Fields, erected from the designs of John Newman, Esq. F.S.A., Architect, forms an interesting architectural engraving, well worth purchasing by the architect who collects materials of this kind. This fine print is published for the benefit of the Charity; and the price is only 4*s.*

Working Ornaments and Forms for the Cabinetmaker, Upholsterer, &c., 2 Parts, large folio, price 10*s.* each, are published.

Knight's Ornaments for Jewellers, Chasers, Die-Sinkers, &c., 4 Parts, 4to, 5*s.* each.

Antique Roses; being a Series of One Hundred Examples from the most celebrated Remains of ancient Rome, for the Use of Architects, Sculptors, Modellers, &c. &c. Selected by Carlo Antonini; and drawn on Stone by Wm. Doyle. No. I. 4to. To be completed in 25 Parts, at 3*s.* each. London, 1832.

The part before us contains four plates: the first three are antique roses, taken from the cloisters of the church of Santa Maria del Popolo in Rome; and the fourth is a large antique rose from the Pantheon. They are beautifully lithographed, and must be valuable as patterns to carvers, modellers, plasterers, &c. The present number is dated 1832; and it is not stated whether any others have been published. Mr. Doyle, we understand, has had great experience in painting on glass, and is a teacher of architectural drawing.

ART. III. *Literary Notices.*

ILLUSTRATIONS, with a Topographical and Descriptive Account, of Cassiobury Park, Hertfordshire, the seat of the Earl of Essex, by John Britton, F.S.A. &c., is about to be published by subscription. Cassiobury is interesting in an

antiquarian point of view; and also on account of its noble Gothic mansion, its beautiful garden scenery, and its very picturesque lodges and cottages; erected, for the most part, from the designs of the present earl. Mr. Britton's work will consist of about 40 pages of letterpress in folio; and, at least, 30 embellishments by Turner, Alexander, Hearne, Elridge, and Pugin. The publication will be limited to 150 copies: 20 of which will have the plates coloured, price 6 guineas each; and the others will be 3 guineas each.

Plans, Elevations, Sections, and Details of the ancient Gates, Fortifications, and other interesting Buildings in York, by P. F. Robinson, Architect, will shortly appear.

A Plan and Section of the Waterford and Kilkenny Railway, with Reports, &c., by R. M. Hallingworth, price 20*s.*, will be published by subscription. A list is already printed of subscribers' names; among which we are glad to see those of a number of architects.

An Essay on the Nature and Application of Steam, by M. A. Alderson, Civil Engineer, will be published as soon as 200 copies are subscribed for at 10*s.* each. This essay was honoured by the award of the highest premium ever yet given by the London Mechanics' Institution. A large portion of the work is devoted to the application of steam to the purposes of warming, ventilating, drying, cooking, &c.

For the above notices we are indebted to Mr. Williams, of the Architectural Library, Charles Street, Soho.

MISCELLANEOUS INTELLIGENCE.

ART. I. *Domestic Notices.*

ENGLAND.

ARCHITECTURAL Drawings and Lectures. — At the last soirée at Kensington Palace, given by His Royal Highness the Duke of Sussex, Mr. Britton exhibited about sixty of his interesting drawings, which have been made to illustrate his lectures on architectural antiquities. These drawings were arranged on the two sides of the gallery library, and were disposed to show the various styles and eras of architecture, as existing in the excavations of India, the temples of Egypt, those of the Grecian Acropolis, also in Rome; then the decline of the Roman architecture, and the introduction and progressive changes and varieties in the Christian architecture of the middle ages; next the castellated class, and lastly the old domestic, from the Norman advent to the revival of the Italian orders in the time of Henry VIII. His royal highness, the lord chancellor, and many noble and distinguished visiters, appeared to take a great interest in this mode of displaying the nationalities and peculiarities of design and execution of so many edifices of such remote times. Any thing that can thus be done to give a fashion or publicity to architecture, either ancient or modern, is entitled to general approval. Mr. Britton has lately given one of his lectures (that on ancient castles) to very large audiences, to the literary and scientific societies of Windsor, Hampstead, and Southwark; and he is to repeat the same before the Marylebone Literary Institution, in the course of the summer. The third number of his *Dictionary of Architecture and Archæology* has been long delayed, as well as the third and concluding part of the *History, &c., of Worcester Cathedral*, in consequence of urgent demands on his time, from the distracted state of parties in his parish (St. Pancras), by public societies and private engagements. He has, however, written memoirs of two of his old friends, viz., Sir John Soane and Sir Jeffrey Wyatville, for Fisher's very beautiful work, *The National Portrait Gallery.*—*T. W. April*, 1834.

Exhibition, Somerset House.—We took a cursory glance at the architectural drawings on the 12th inst. There is nothing very striking; but a number of designs at, and a few above, mediocrity. We shall notice only those few of

which we retain most recollection. Among the public buildings, the first which we shall mention is *A Design* (886.) *submitted to the Fishmongers' Company, in December*, 1831, which we prefer to that executed, from its noble detached portico, and the general style of grandeur and originality which pervades it. There are several other designs for this Fishmongers' Hall, almost every one of which (particularly 892.) appears to us better than that which has been adopted; chiefly because the latter has no detached portico, while it has a number of attached columns: thus incurring expense, without producing an adequate effect. *The Perspective View of a Design for a Royal Exchange* (893.), which obtained the gold medal in the Royal Academy in 1833, surprised us not a little. As a piece of architectural composition, it belongs to the school of attached columns. Specimens of this school may be seen in a portion of the elevation of the Treasury, where the columns are of no use, but to support an entablature, and darken the windows under it; or in Trinity Church, New Road, where the columns support little vase-like ornaments. In the design (893.) there appeared to us, to be above a hundred of these attached columns; and only one portico with the columns free. With respect to the drawing, we were still more surprised than we were at the design: it is of a very inferior description, as any one may be convinced of, by comparing it with 938., drawn in the same simple style, but with great accuracy, distinctness, and beauty. *The Design for a National Pantheon* (898.), *proposed to be erected in Trafalgar Square*, looks more like a monumental column or obelisk joined to a fountain, than a place for containing busts or statues. *The intended Suspension Bridge across the River Thames* (925.) is too light and fragile in appearance. The first point to be attended to, in a bridge, is the expression of strength. Here the piers in the Gothic style are pierced with windows and arches in all directions, so as to convey the idea of lightness and weakness. Again, the fundamental principle by which effect is produced is contrast; and, in a suspension bridge, there is a fine opportunity of contrasting simple massive piers with the light open work which suspends the roadway of the bridge from the chains carried by these piers. We are quite sure that any architect of a reasoning taste will feel the force of these objections. *The View in the lower Quadrangle of Hungerford Market* (942.) forms a beautiful architectural picture; as do the views of the same market, 879. and 943. *The Design for a new Temple Bar* (947.) we trust will never be executed: to do so at the present day, would argue as much wisdom as placing a partial dam across the Thames, by restoring the obstruction at old London Bridge. *Perspective View of the proposed Free Grammar Schools, Birmingham, selected by the Committee as One of the Three best Designs for the Premiums.* (952.) The general effect of this design is good; but, on looking into the detail, we find far too much care bestowed on the towers and angular buttresses for a school, and far too little on the chimney tops, to be in harmony with the angular buttresses. A parapet of pediments raised against the side of the roof is too obviously merely ornamental; and, besides, gives intricacy in a part of the design where repose would have had a better effect. *The Design for the Termination of an Aqueduct* (1013.) has too many parts for producing effect; and it has nothing characteristic of its being the termination of an aqueduct. Grandeur ought to have been aimed at, instead of variety. *The Design for an Architectural Institution* (1020.) is architectural, and apparently suitable; and we should be glad to receive the plans and sections, with a description of what is intended by the author, for publication in this Magazine. We should also be glad to receive the ground plan of 1021., for the sake of showing the internal arrangement. The elevation of this design we think far too extravagant for execution in the present day. Architects seem to forget that this is no longer the age of gorgeous public buildings.

Among the designs for dwellings, we do not recollect any of preeminent excellence. We were most pleased with the *Interiors intended for Coombe Abbey, near Coventry. The Entrance Gallery* (932.) is in the Elizabethan style, and very fine, as is *the Entrance to the great Dining-Hall.* (1012.) *The Draw-*

ing-room (927.) is in the style of Louis XIV., large in extent, and very gorgeous and characteristic in design. *The Sketch of the North Front of Emo Park, Queen's County, Ireland* (913.), shows a fine architectural basement or terrace, which most of the designs for villas in the present exhibition want. *The Cottage in Hayling Island* (914.), and that *at Dichley, on the Derby Road* (915.), are suitable and picturesque. *The Design for a Castellated Mansion* (919.) is not sufficiently high for the castellated style, in proportion to its breadth; and it ought to have been placed on a broad architectural basement. *The Villa in Surrey* (920.) seems classical and varied. *A Mansion in Scotland* (926.), surrounded by its terrace walls, has a characteristic effect. *Claydagh House* (929.) rises from a platform bounded by a balustrade, agreeably to our taste. *The Interior of the Library at Leigh Park, Hants* (956.), (which we saw last summer), is exceedingly good, both in reality and in the design. *The East View of Cossey Hall, Norfolk* (958.), is beautifully drawn; but the subject does not form such a good whole as it might have done, had the drawing been smaller, or the picture larger. It fills, in fact, too much of the paper, and has neither enough of background nor of foreground. As to the design itself, its details, in an architectural point of view, are of surpassing beauty. (See a notice of Mr. Dighton's model of this building below.

Among the models, that for a *Chapel to the General Cemetery Company* (873.) executed in Maltese stone, is by far the most beautiful, both as an architectural design and as a model. That for completing the *Buildings at Whitehall*, is covered with attached columns, or with columns detached, but only a foot or two from the wall to which they belong, and consequently merely ornamental. There is not a mode of disposing of columns more repugnant to our feelings than this. Half columns may actually be of some use, as adding to the strength of the wall; but columns detached, and yet affording no useful shade or protection, while they occasion nearly as great an expense as porticoes, are wholly without either grandeur or utility. *The Model of the County Courts at Kerry, in Ireland* (874.), is one of which we should much wish to lay the ground plan before our readers.

Such are our opinions respecting a few of the architectural drawings and models exhibited; but we must beg our readers to recollect that these opinions were formed at one visit; and that, as they are put down from recollection, we may sometimes have referred to the wrong number. If we have leisure, we shall take another view, and give a second notice. In the meantime, if any artist thinks we have formed an erroneous judgment of his works, let him recollect that these criticisms are not anonymous, and are therefore likely to be sincere. We shall be happy to insert any reply to them; only premising, that the party replying shall assign his reasons, and give us, either publicly or privately, his name. This we require, on the principle that all replies to criticisms having the responsibility of a name, should have a similar responsibility. We shall also be glad to have the criticisms of correspondents on any of the architectural designs in the present exhibition, whether they have been noticed by us or not.

The Model of Cossey Hall, Norfolk, the Seat of the Right Hon. Lord Stafford, was inspected by us at the house of the modeller, Mr. Dighton, in Mount Street, Grosvenor Square, May 12. The late Lady Stafford was noted among the nobility as a woman of great taste generally, and more particularly for her taste in, and knowledge of, architecture. The improvements at Cossey Hall were begun some years ago, under her direction; the architect employed being J. C. Buckler, Esq., son of the architectural antiquary of that name, and well known for his profound knowledge of the Gothic style in all its details, and for his great taste. The model before us consists of a series of quadrangles, forming one general parallelogram in the plan. The building is placed on ground which slopes gently to a river, and the principal living-rooms are in the upper quadrangle, and along one entire side of the parallelogram, terminating near the river in a large conservatory. The opposite side of the parallelogram contains chiefly the offices, stables, &c. The architecture is chiefly

remarkable for the very great beauty of its details; most of which are executed either in red or white brick, made and burned on the spot. The only decided principal mass is the upper one, containing the entrance hall; the remainder consists of a series of masses in succession, forming a continuous elevation from the offices near the river, to the entrance hall and chapel at the other extremity. The model, not being quite completed, does not yet display either the grand entrance or the chapel, but the situations for both are pointed out. Along the drawing-room front there is a very broad paved terrace, supported by a forest of piers, surrounded by Gothic arches; and from this terrace there is a magnificent double flight of steps to the lawn. There is one gateway to the kitchen court, another to the stable court, and an entrance gate from the river, all of very great beauty. The model, however, is chiefly remarkable, and will be chiefly useful, for the very great accuracy, beauty, and character of the details — of the buttresses, towers, turrets, chimney tops, gable ends, cornices, string-courses, terminations to dormer windows, finials, finishings to gateways, &c. &c. The fidelity and beauty with which these details have been executed by Mr. Dighton are almost beyond praise. We could wish that he would make casts of all of them, and indeed of the whole building, so as to put it in the power of architects all over the country to possess themselves of a model, which could not fail to be of great use in aiding their invention, and correcting and purifying their taste in the Gothic style. We could wish to see Mr. Dighton employed in modelling some of the other fine buildings in the country; such as Alton Towers and the buildings in the Enchanted Valley, Eaton Hall, the proposed improvements at Trentham Hall, &c.

The Pantheon Bazaar, Oxford Street (noticed p. 91.), is nearly completed; and we were favoured with a private view of it on the 12th of May. We expect soon to be able to lay before our readers such plans, elevations, and sections of this large and magnificent building (to which there is nothing of the kind that can be compared in the metropolis), as will give them a complete idea of it; and will show them how much beauty of effect may be combined with a speculation having profit for its object. We shall also point out what we think superfluous in its elevation. The bazaar will be opened to the public on the 28th of May.

Art. II. *Queries and Answers.*

Pargetting. — In your *Architectural Encyclopædia* you mention a new kind of pargetting, composed of lime and powdered brick; but you do not say in what proportions they should be used. I shall feel much obliged by your giving the exact proportions, as well as the manner of use, if it differs from that employed in the old method. — *W. T. March*, 1834. The powdered brick is used instead of sand, and in the same proportion. There is no difference in the mode of laying it on. — *Cond.*

Brickmaking Machines. — What are the respective merits, or otherwise, of Mr. Cundy's patent brickmaking machine; and that of Messrs. Fortnum and Fencke's (or some such name), of a more recent date, and lately employed at Peckham Rye; and of the Russian patent one of M. de Chomas; or of any other that may have been invented? — *W. Newcastle Street, Strand, London, April* 24. 1834.

Art. III. *Obituary.*

Died, at his house at Camberwell, April 29., *William Froome Smallwood*, Esq., Architect, at the early age of 34 years. Mr. Smallwood was eminent as an architectural draughtsman, particularly in the Gothic style; and, as a man, he was much esteemed and beloved by all who knew him.